

Notice of Allowability

Application No.

10/052,681

Applicant(s)

XI ET AL.

Examiner

Art Unit

Ginette Peralta

2814

MW

-- **Th MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

☒ This communication is responsive to Amendment filed on 9/22/03.

☒ The allowed claim(s) is/are 1-38.

☒ The drawings filed on 17 January 2002 are accepted by the Examiner.

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

(a) ☐ The translation of the foreign language provisional application has been received.

☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

1) ☐ hereto or 2) ☐ to Paper No. _____.

(b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.

(c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

☒ Notice of References Cited (PTO-892)

☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. 9/03,11/03

☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5 ☐ Notice of Informal Patent Application (PTO-152)

6 ☐ Interview Summary (PTO-413), Paper No. _____

7 ☐ Examiner's Amendment/Comment

8 ☐ Examiner's Statement of Reasons for Allowance

9 ☐ Other

Wael Liberman
SUPERINTENDING PRINCIPAL EXAMINER
TECHNOLOGY CENTER 1203

REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance: The primary reason for the allowance of the claims is the inclusion of the feature of depositing a first barrier layer, wherein the barrier layer is selected from the group consisting of TiSi_xN , $\text{TiN}(\text{C})$, $\text{TiNSi}(\text{C})$, Ta, TaC, TaN(C), TaNSi(C), W, WN_x , SiO_xN_y , SiC, AlN, and Al_2O_3 , removing the first barrier layer from the horizontal surfaces of the patterned substrate, and depositing a second barrier layer, which is not anticipated nor rendered obvious over the prior art of record. Prior art of record includes Taguchi et al. which teaches a first barrier layer comprising SiN_x , removing the first barrier layer from the horizontal surfaces of the patterned substrate, and depositing a second barrier layer, wherein SiN_x is the only material used for the disclosed intended purpose of SiN_x being a material that belongs to a class of material which does not contain the problematic water and oxygen and the SiN_x prevents the oxidation of the substratum layer that contains Ti. Prior art hereby made of record includes Hong et al., which teaches a first barrier layer that comprises one of Si_3N_4 , Al_2O_3 , SiON or TiO_2 , and removing the first barrier layer from the horizontal surfaces, but teaches away from depositing a second barrier layer, as a second metallic barrier layer can produce a large increase in resistance-capacitance delay times, therefore it would not have been obvious to combine the teachings of Hong et al. and Taguchi et al., and applicant's claimed invention is not anticipated nor rendered obvious.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ginette Peralta whose telephone number is (703) 305-7722. The examiner can normally be reached on Monday to Friday 8:00 AM- 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

GP